ORDER NO. SD82062214C8

Service Manual

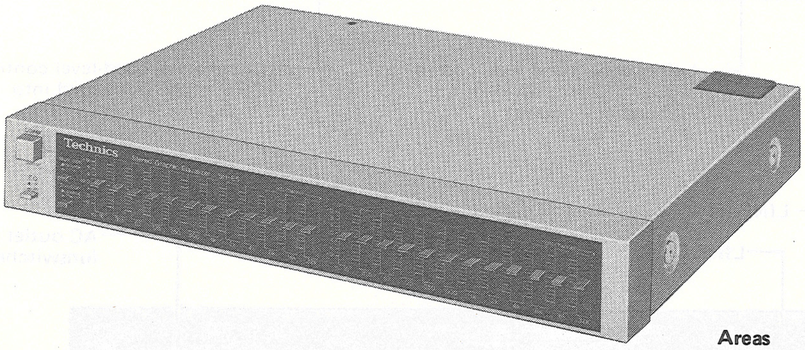
Stereo Graphic Equalizer

SH-E5

[D],[EK],[EW],[EB],
[EF],[EGA],[EH],[XA],[XL]

SH-E5 (K)

[D],[EK],[EW],[EB],
[EF],[EGA],[EH],[XA],[XL]



Areas

- * [D] is available in Scandinavia.
- * [EK] is available in United Kingdom.
- * [EW] is available in Switzerland.
- * [EB] is available in Belgium.
- * [EF] is available in France.
- * [EGA] is available in F.R. Germany.
- * [EH] is available in Holland.
- * [XA] is available in Southeast Asia, Oceania, Africa, Middle Near East and Central South America.
- * [XL] is available in Australia.

* The cabinet and front panel are available in black color and silver types.
* The black type model is provided with (K) in the Service Manual.

Specifications (Specifications are subject to change without notice for further improvement.)

(DIN 45 500)

Frequency response (center position) : 5 Hz~100 kHz, −1 dB
Maximum output voltage : 8 V (1 kHz, THD 0.01%)
Rated output voltage : 1 V
Rated total harmonic distortion : 0.005% (20 Hz~20 kHz)
0.003% (1 kHz)
Input sensitivity : 1 V
Signal-to-noise ratio : 100 dB (110 dB, IHF' A)
Maximum input voltage : 8 V (1 kHz)
Input impedance : 47 kΩ
Gain : 0±1 dB
Channel balance 250 Hz~6300 Hz : ±0.5 dB
Channel separation 1kHz : 60 dB

Band level controls : +12 dB~−12 dB
(12 elements continuously variable per channel)
Center frequency : 16 Hz, 31.5 Hz, 63 Hz, 125 Hz, 250 Hz, 500 Hz, 1 kHz, 2 kHz, 4 kHz, 8 kHz, 16 kHz, 32 kHz

GENERAL

Power supply : AC 240 V 50 Hz only (For Australia and for United Kingdom)
AC 220 V 50 Hz only (For Germany and for Switzerland)
AC 110 V/120 V/220 V/240 V, 50 Hz/60 Hz. (For areas)
Power consumption : 17 W
Dimensions (H×W×D) : 50×315×240 mm
(2''×12-13/32''×9-7/16'')
Weight : 2.0 kg (4.4 lb)

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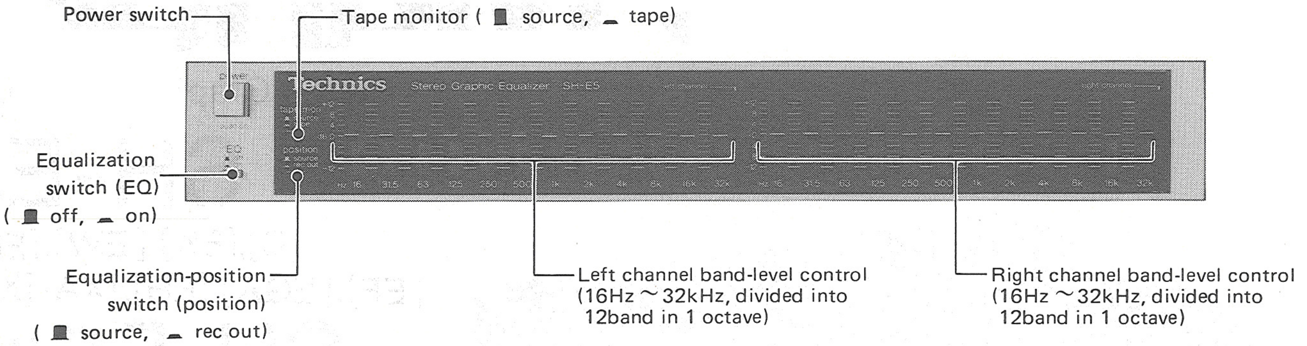
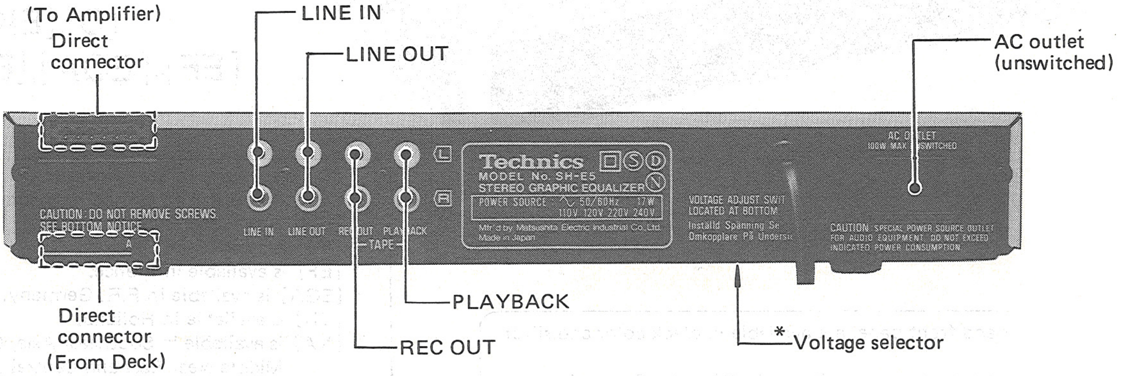
Technics

Matsushita Electric Trading Co., Ltd.
P.O. Box 228, Central Osaka Japan

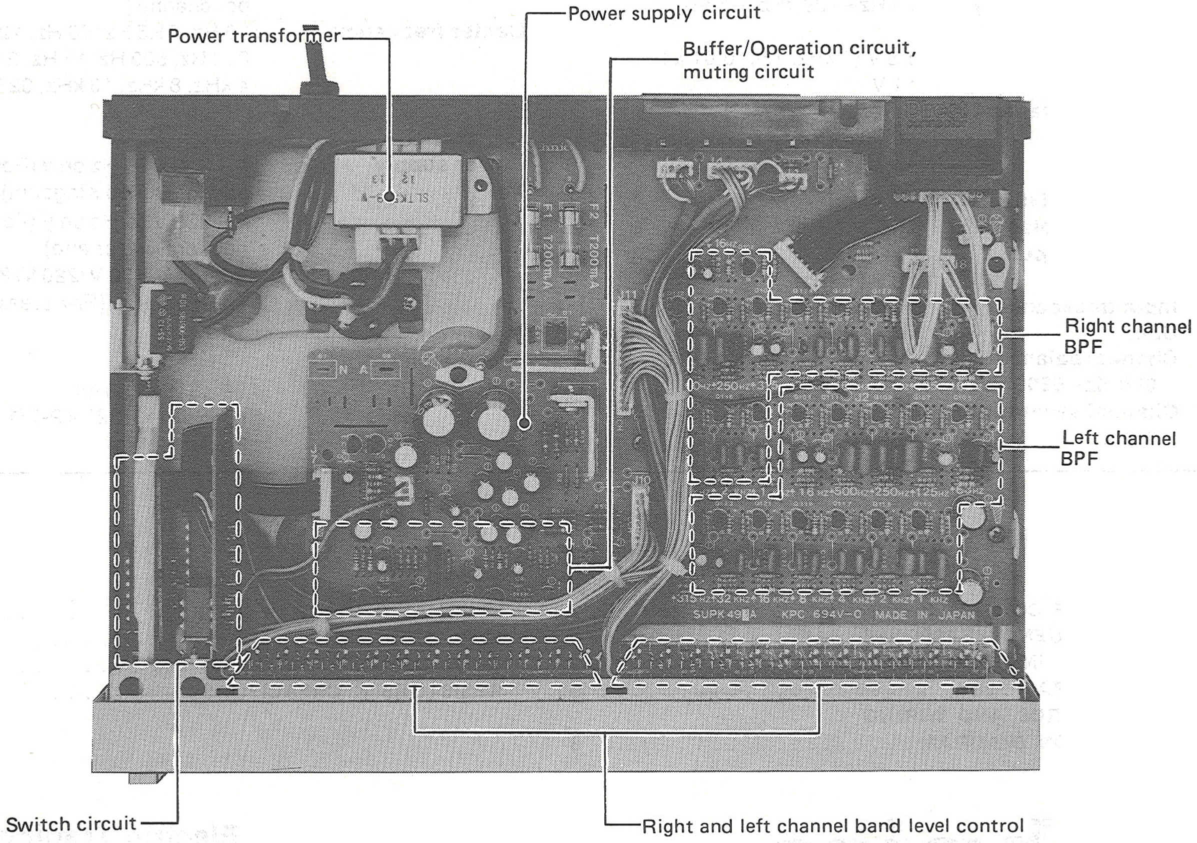
LOCATION OF CONTROLS


Power switch
Tape monitor (■ source, ▁ tape)
Equalization switch (EQ) (■ off, ▁ on)
Equalization-position switch (position) (■ source, ▁ rec out)
Left channel band-level control (16Hz ~ 32kHz, divided into 12band in 1 octave)
Right channel band-level control (16Hz ~ 32kHz, divided into 12band in 1 octave)
Technics
Stereo Graphic Equalizer SH-E5
16 31.5 63 125 250 500 1k 2k 4k 8k 16k 32k

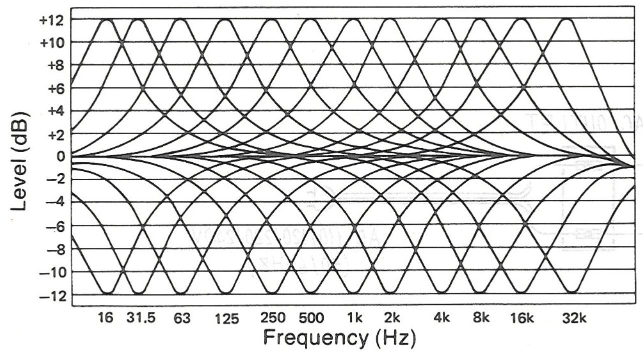

(To Amplifier) Direct connector
LINE IN
LINE OUT
AC outlet (unswitched)
PLAYBACK
REC OUT
Direct connector (From Deck)
* Voltage selector
CAUTION: DO NOT REMOVE SCREWS. SEE BOTTOM NOTICE.
LINE IN
LINE OUT
REC OUT
PLAYBACK
TAPE
L
R
Technics
MODEL No. SH-E5
STEREO GRAPHIC EQUALIZER
POWER SOURCE: ~ 50/60Hz 17W
110V 120V 220V 240V
Mfr'd by Matsushita Electric Industrial Co.,Ltd.
Made in Japan
VOLTAGE ADJUST SWITCH LOCATED AT BOTTOM
AC OUTLET
100W MAX UNSWITCHED
CAUTION: SPECIAL POWER SOURCE OUTLET FOR AUDIO EQUIPMENT. DO NOT EXCEED INDICATED POWER CONSUMPTION.

* This power supply for this unit varies depending the areas.
Also, the parts use for power supply are different.
So, refer to the circuit diagram and replacement parts list.

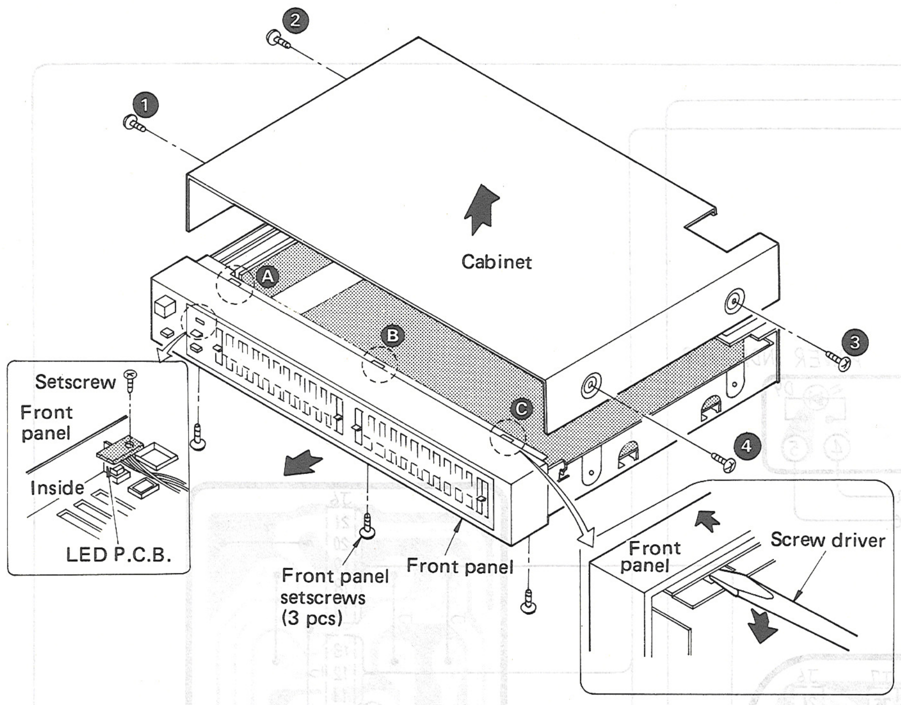
* [D], [EB], [EF], [EH] and [XA] areas are provided with voltage selector.


Power transformer
Power supply circuit
Buffer/Operation circuit, muting circuit
Right channel BPF
Left channel BPF
Switch circuit
Right and left channel band level control
F1 T200mA
F2 T200mA
SUPK49■A KPC 694V-0 MADE IN JAPAN

TOTAL FREQUENCY RESPONSE



DISASSEMBLY INSTRUCTIONS



❷
❶
Cabinet
Ⓐ
Ⓑ
Ⓒ
❸
❹
Setscrew
Front panel
Inside
LED P.C.B.
Front panel setscrews (3 pcs)
Front panel
Front panel
Screw driver

Fig. 1

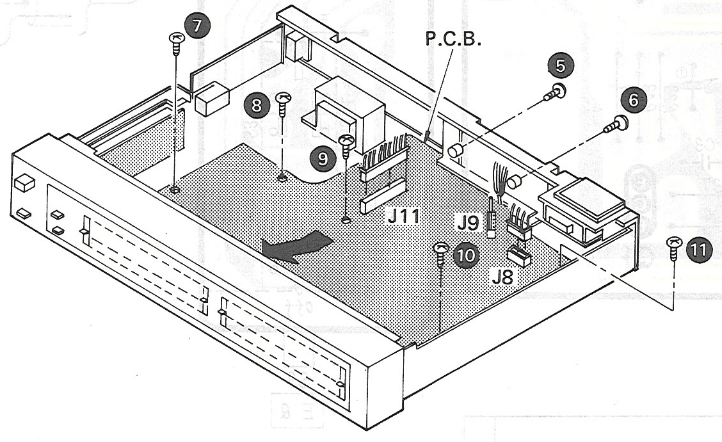
• How to remove the front panel

1. Remove the setscrew (Fig. 1: ❶ ~ ❹), and then the cabinet can be removed.
2. Shift the band level knobs (24 pcs) up (+12dB).
3. Remove the 3 setscrews of the front panel.
4. Release the claws (Ⓐ ~ Ⓒ) at top of the front panel by a screwdriver. Pull the front panel toward you with care not to scratch the knobs.
5. Remove the LED P.C.B. inside the front panel. Then the front panel can be removed.

Note: When remove the band level control knobs, remove the front panel first.

• How to remove the P.C.B.

1. Remove the cabinet.
2. Pull out the 3 connectors (J8, 9, 11).
3. Remove the rear terminal setscrews (Fig. 2: ❺, ❻) and the 5 setscrews (Fig. 2: ❼ ~ ⓫) of the P.C.B.
4. Pull the P.C.B. toward you and lift it.

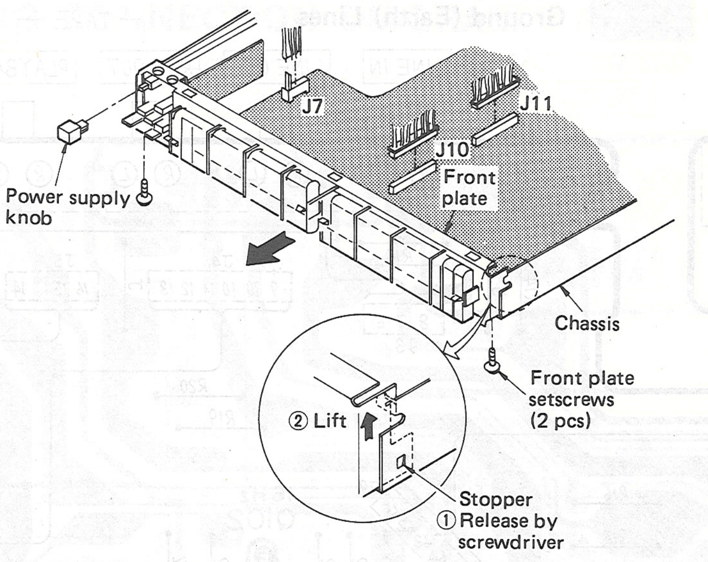


❼
P.C.B.
❺
❻
❽
❾
J11
J9
❿
J8
⓫

Fig. 2

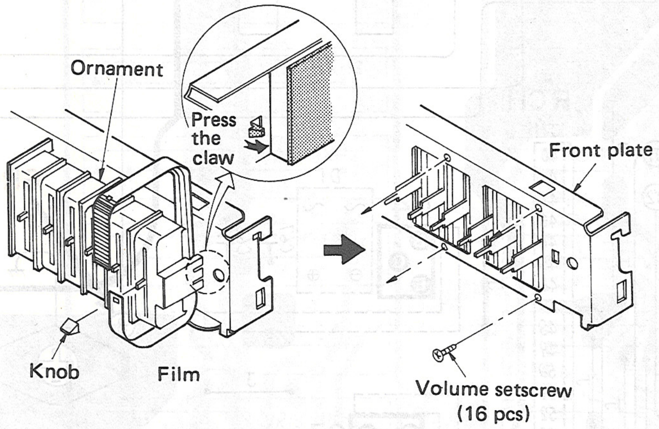
• How to remove the slide volume

1. Remove the cabinet and front panel.
2. Remove the 2 setscrews of front plate, and 3 connectors (J7, 10, 11). (Fig. 3)
3. Remove the power supply knob.
4. Release the chassis stopper from inside, and lift the front plate to remove.
5. Pull out the 24 knobs for the right and left channels, and then remove the film. (Fig. 4)
6. Push the claw of the ornament from inside as in Fig. 4 to remove the ornament.
(There are 4 ornaments, so remove the other ornaments in the same way.)
7. Remove the 16 setscrews of the slide volume and remove them from the front chassis along with the P.C.B.



J7
J11
J10
Front plate
Power supply knob
Chassis
② Lift
Front plate setscrews (2 pcs)
Stopper
① Release by screwdriver

Fig. 3

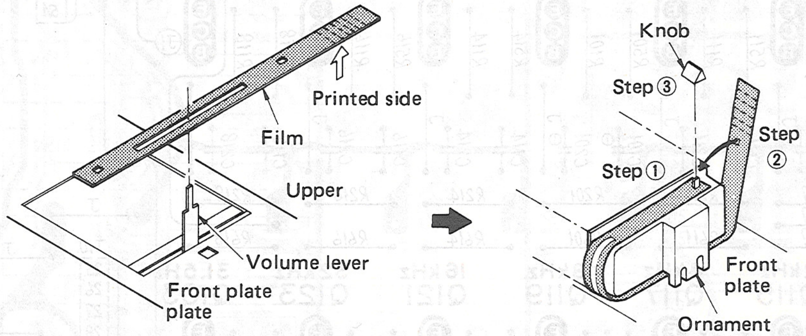


Ornament
Press the claw
Front plate
Knob
Film
Volume setscrew (16 pcs)

Fig. 4

• How to set the film

Set the film onto each volume lever with the face (printed side) down as shown in Fig. 5.
Next, fit in the ornament and then set the film as in Fig. 5.

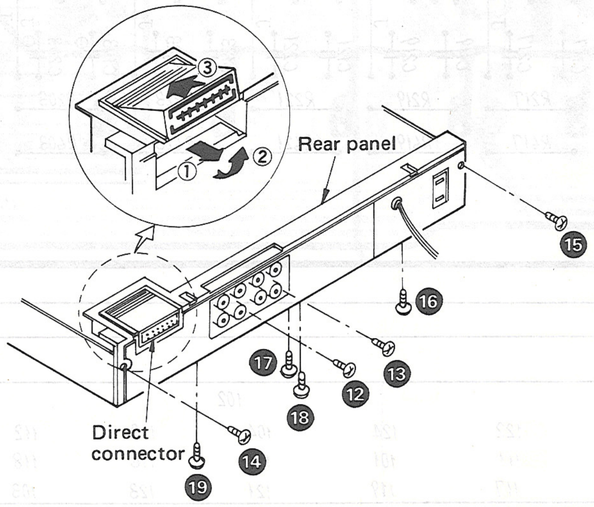


Printed side
Film
Upper
Volume lever
Front plate
Knob
Step③
Step②
Step①
Front plate
Ornament

Fig. 5

• How to remove the direct connector

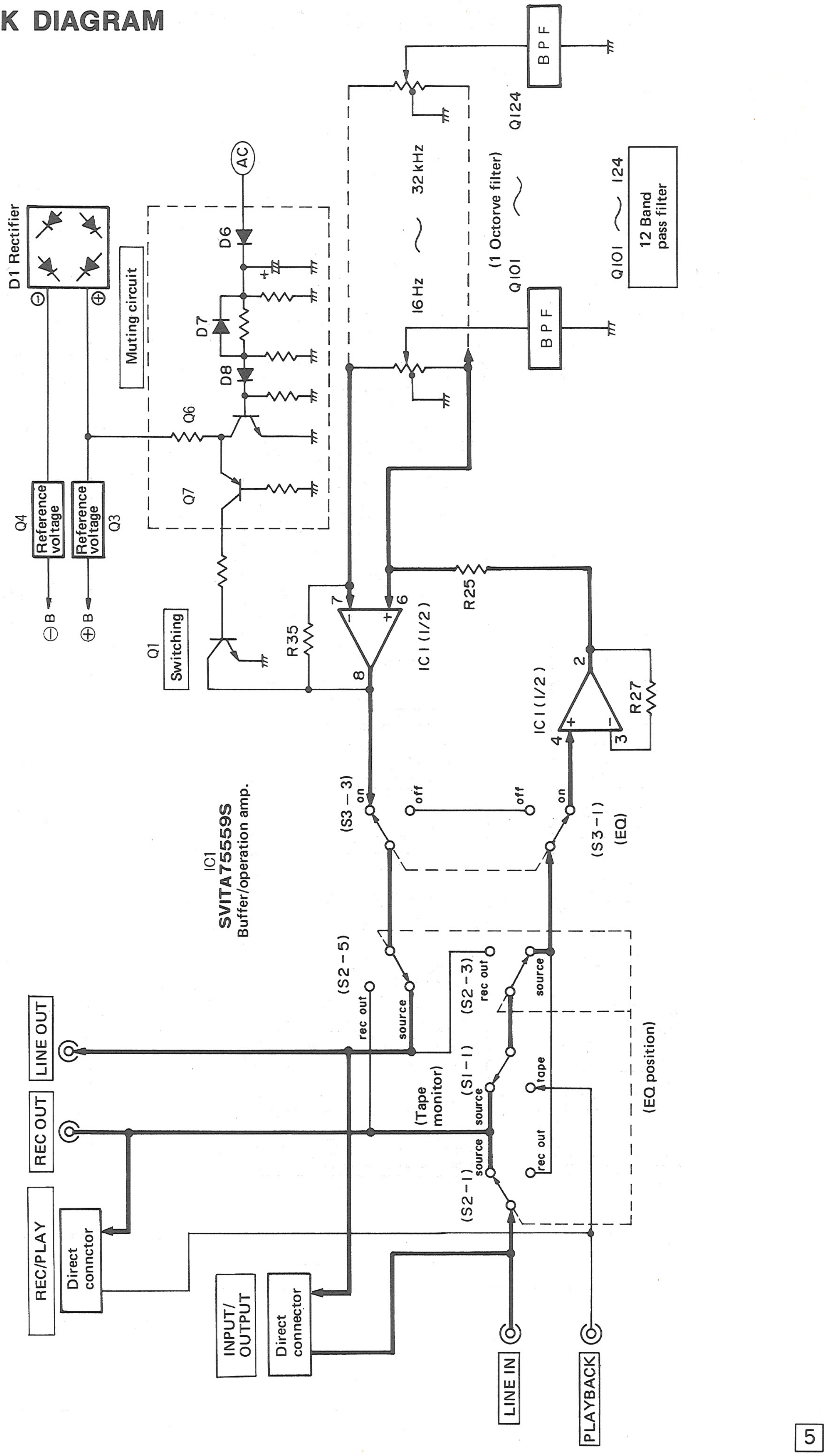
1. Remove the cabinet.
2. Remove the terminal setscrews (Fig. 6: ⓬, ⓭) and 6 setscrews (Fig. 6: ⓮ ~ ⓳) of the rear panel, and then draw out the rear panel.
3. Pull out the direct connector and remove it in the the numerical order ① ~ ③.



③
①
②
Rear panel
⓯
⓰
⓱
⓭
⓬
⓲
Direct connector
⓮
⓳

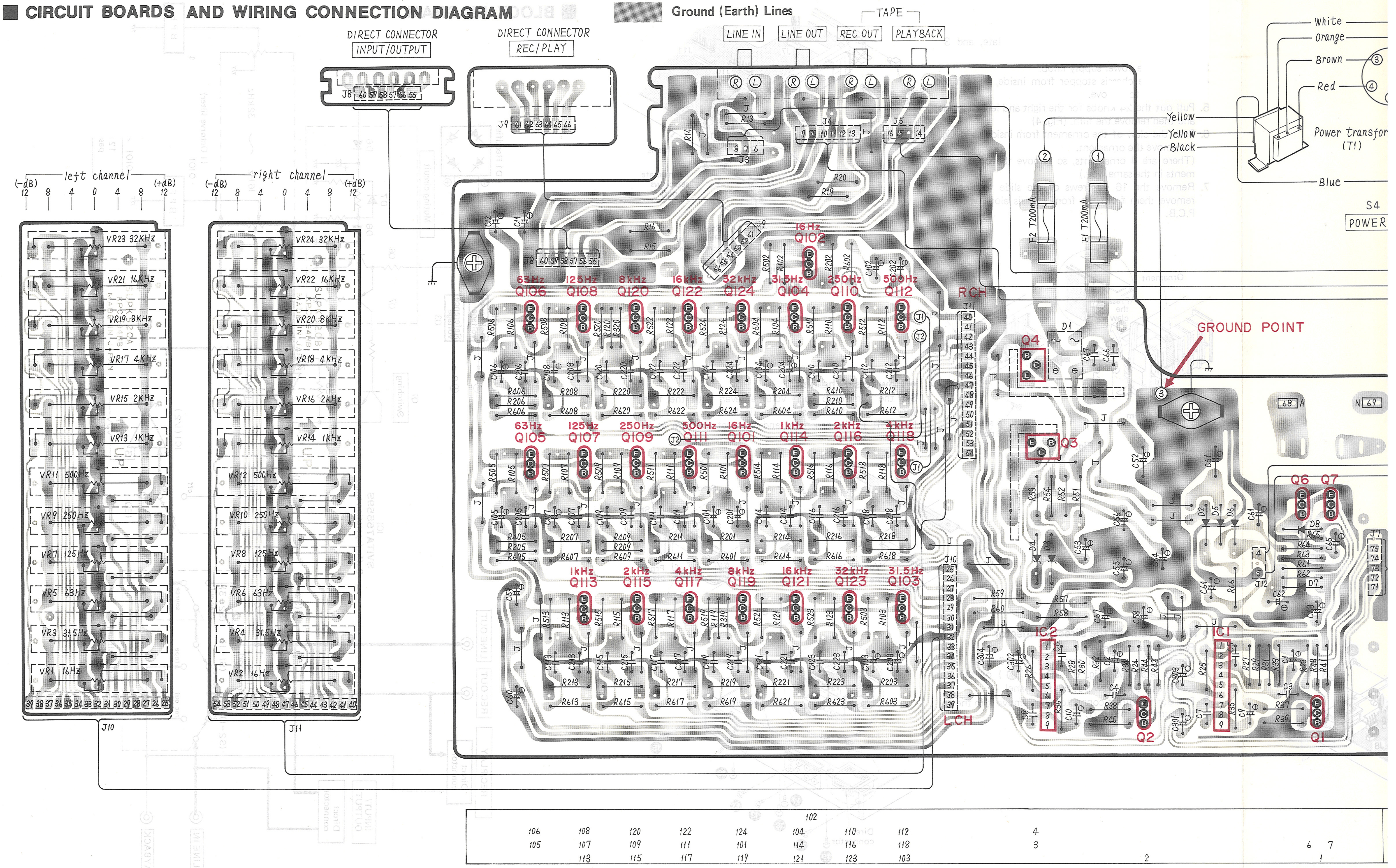
Fig. 6

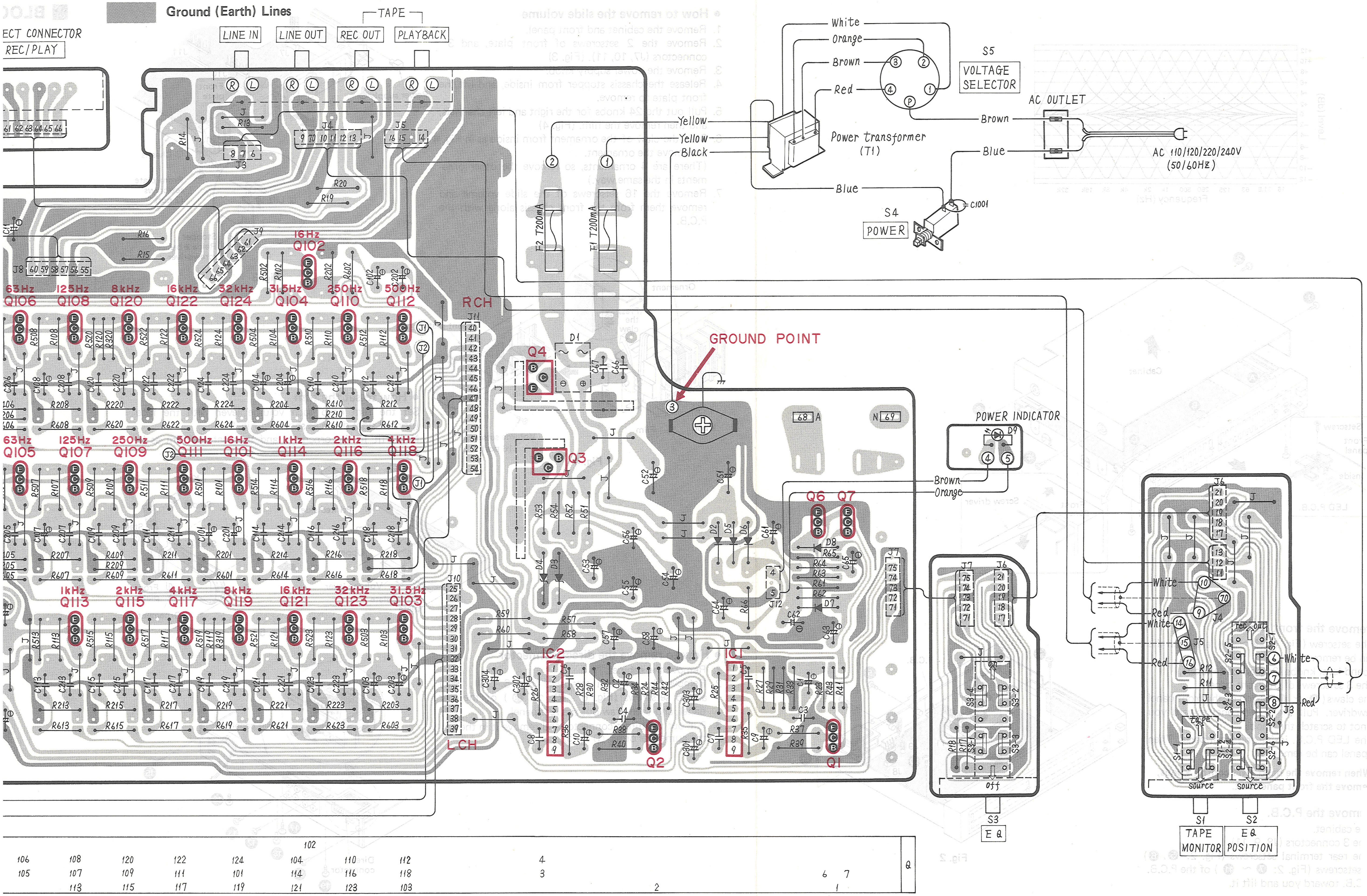
BLOCK DIAGRAM


D1 Rectifier
Q4 Reference voltage
Q3 Reference voltage
⊖ B
⊕ B
AC
Muting circuit
D6
D7
D8
Q6
Q7
Q1 Switching
BPF
Q124
32 kHz
(1 Octorve filter)
16 Hz
Q101
12 Band pass filter
Q101 ~ 124
7
6
R25
R35
8
IC1 (1/2)
2
R27
4
3
IC1 SVITA75559S Buffer/operation amp.
(S3−3)
on
off
(S3−1)
(EQ)
(S2−5)
rec out
source
(S2−3)
(S1−1)
(Tape monitor)
tape
(S2−1)
(EQ position)
LINE OUT
REC OUT
REC/PLAY
Direct conctor
INPUT/OUTPUT
Direct connector
LINE IN
PLAYBACK

CIRCUIT BOARDS AND WIRING CONNECTION DIAGRAM

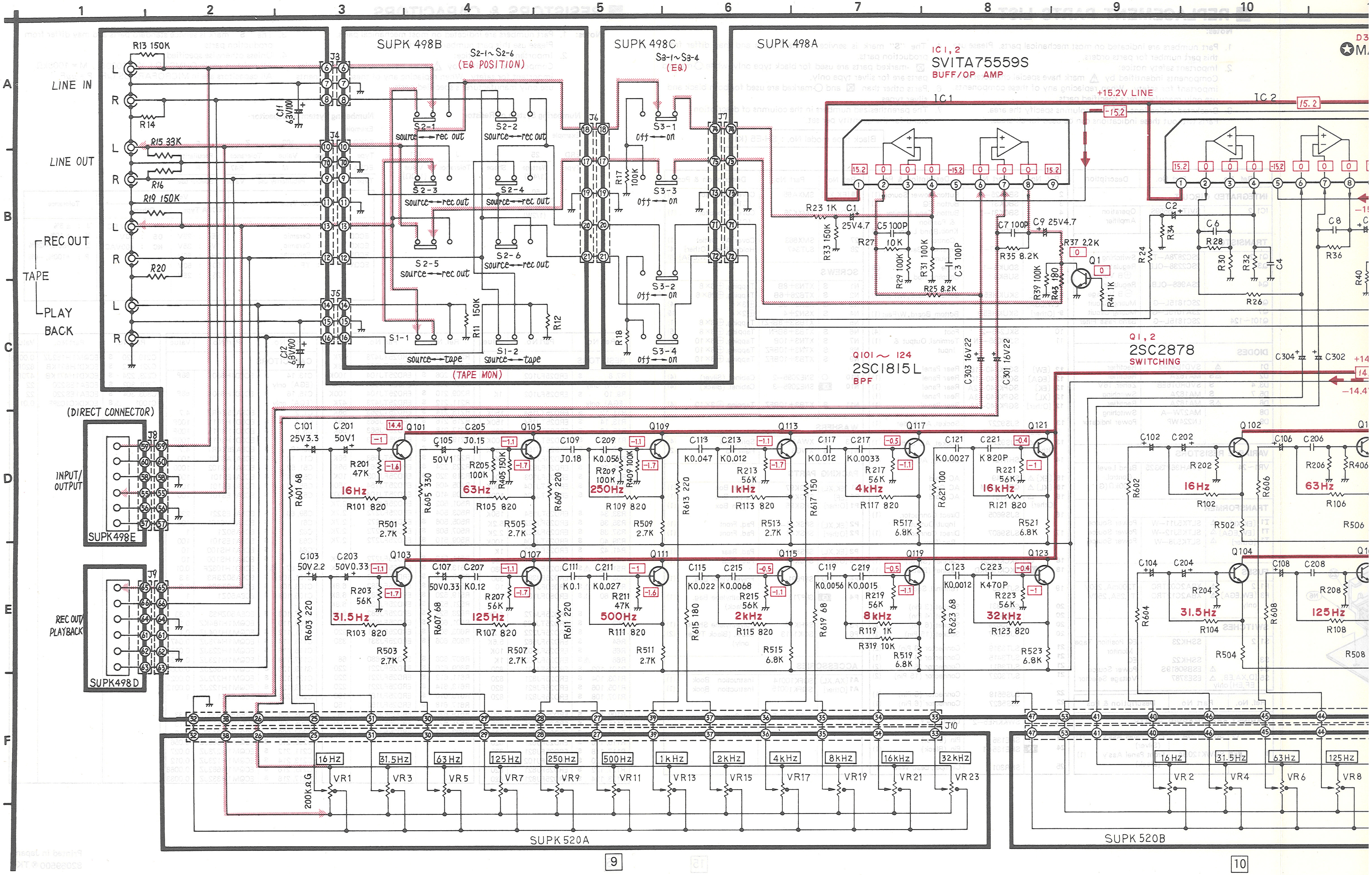
▨ Ground (Earth) Lines

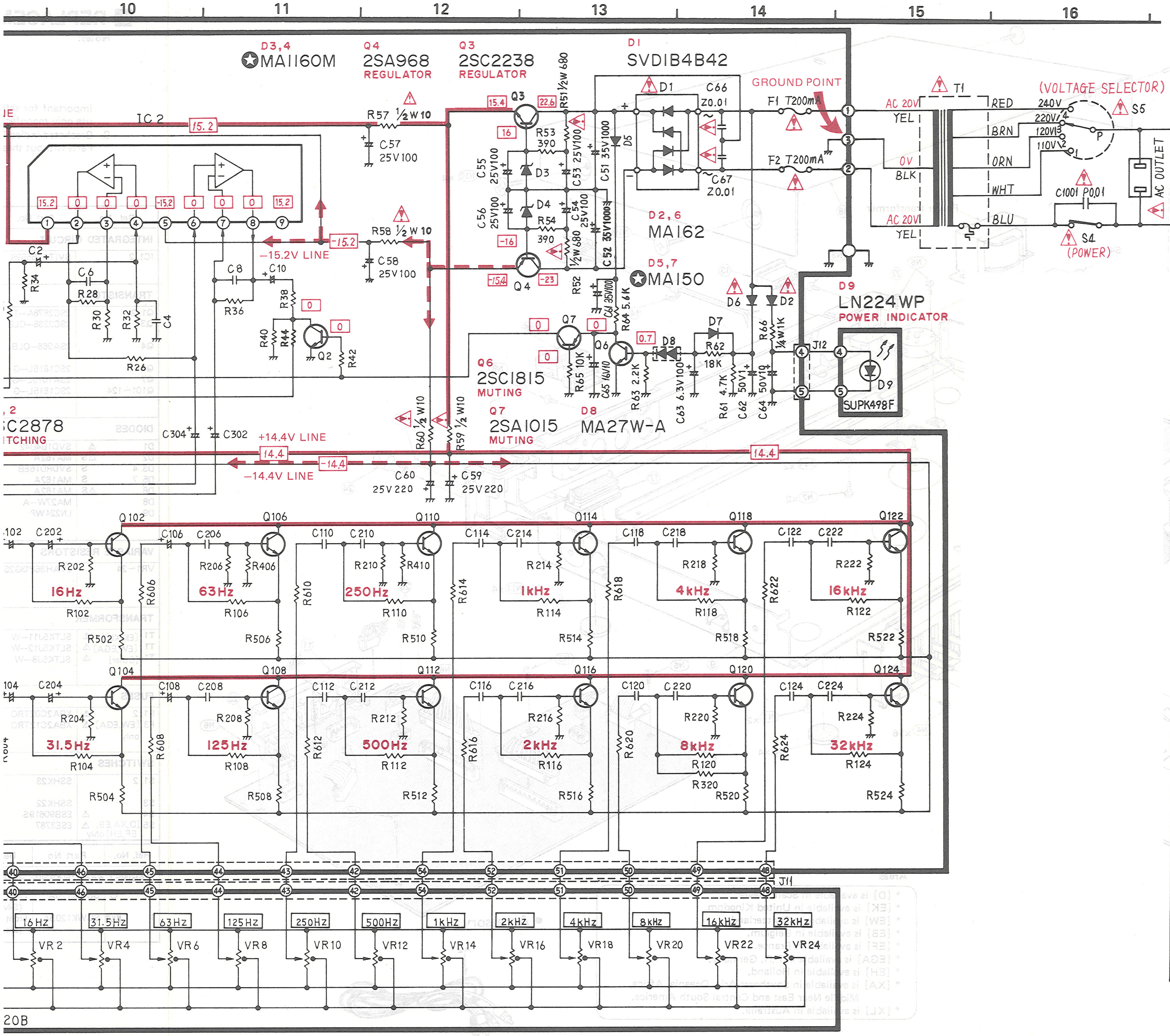

DIRECT CONNECTOR
INPUT/OUTPUT
J8 60 59 58 57 56 55
DIRECT CONNECTOR
REC/PLAY
J9 61 62 63 64 65 66
TAPE
LINE IN
LINE OUT
REC OUT
PLAYBACK
R L
J3 8 7 6
J4 9 10 11 12 13
J5 16 15 14
R13
R14
R19
R20
R15
R16
C11
C12
F2 T200mA
F1 T200mA
White
Orange
Brown
Red
Yellow
Yellow
Black
Blue
Power transfor
(T1)
S4
POWER
left channel
right channel
(-dB)
(+dB)
12 8 4 0 4 8 12
VR23 32KHz
VR21 16KHz
VR19 8KHz
VR17 4KHz
VR15 2KHz
VR13 1KHz
VR11 500Hz
VR9 250Hz
VR7 125Hz
VR5 63Hz
VR3 31.5Hz
VR1 16Hz
39 38 37 36 35 34 33 32 31 30 29 28 27 26 25
J10
VR24 32KHz
VR22 16KHz
VR20 8KHz
VR18 4KHz
VR16 2KHz
VR14 1KHz
VR12 500Hz
VR10 250Hz
VR8 125Hz
VR6 63Hz
VR4 31.5Hz
VR2 16Hz
54 53 52 51 50 49 48 47 46 45 44 43 42 41 40
J11
16Hz Q102
63Hz Q106
125Hz Q108
8kHz Q120
16kHz Q122
32kHz Q124
31.5Hz Q104
250Hz Q110
500Hz Q112
63Hz Q105
125Hz Q107
250Hz Q109
500Hz Q111
16Hz Q101
1kHz Q114
2kHz Q116
4kHz Q118
1kHz Q113
2kHz Q115
4kHz Q117
8kHz Q119
16kHz Q121
32kHz Q123
31.5Hz Q103
RCH
LCH
J1
J2
J11 40 41 42 43 44 45 46 47 48 49 50 51 52 53 54
J10 25 26 27 28 29 30 31 32 33 34 35 36 37 38 39
Q4
Q3
D1
C67
C66
GROUND POINT
③
①
②
68 A
N 69
C52
C51
R53
R54
R52
R51
D4
D3
C53
C56
C55
C54
D2 D5 D6
C61
Q6 Q7
D8
R65
R64
R63
R61
R62
C65
D7
J12
C62
C63
C64
R66
J7 75 74 73 72 71
R59
R60
R57
R58
C57
C58
IC2
IC1
1 2 3 4 5 6 7 8 9
C304
C302
C303
C301
R26
R28
R30
R32
R34
R24
R44
R42
R36
R38
R40
C4
C8
C10
Q2
R25
R27
R31
R33
R29
R49
R41
R35
R37
R39
C3
C1
C7
C9
Q1
E C B
102
106 108 120 122 124 104 110 112 4
105 107 109 111 101 114 116 118 3 6 7
113 115 117 119 121 123 103 2 1


Ground (Earth) Lines
ECT CONNECTOR
REC/PLAY
TAPE
LINE IN
LINE OUT
REC OUT
PLAYBACK
R L
J3
J4
J5
J8
J9
J10
J11
R13
R14
R15
R16
R19
R20
63Hz Q106
125Hz Q108
8kHz Q120
16kHz Q122
32kHz Q124
31.5Hz Q104
250Hz Q110
500Hz Q112
16Hz Q102
63Hz Q105
125Hz Q107
250Hz Q109
500Hz Q111
16Hz Q101
1kHz Q114
2kHz Q116
4kHz Q118
1kHz Q113
2kHz Q115
4kHz Q117
8kHz Q119
16kHz Q121
32kHz Q123
31.5Hz Q103
RCH
LCH
F2 T200mA
F1 T200mA
D1
Q4
Q3
Q2
Q1
Q6
Q7
IC1
IC2
GROUND POINT
J12
D2
D3
D4
D5
D6
D7
D8
White
Orange
Brown
Red
Yellow
Yellow
Black
Blue
S5
VOLTAGE SELECTOR
Power transformer (T1)
AC OUTLET
Brown
Blue
AC 110/120/220/240V (50/60Hz)
S4
POWER
C1001
POWER INDICATOR
D9
Brown
Orange
J6
J7
White
Red
White
Red
White
Red
J3
J4
J5
R12
R11
rec out
tape
source
source
off
S3
EQ
S1
TAPE MONITOR
S2
EQ POSITION

SCHEMATIC DIAGRAM

(This schematic diagram may be modified at any time with the development of new technology.)


1
2
3
4
5
6
7
8
9
10
A
B
C
D
E
F
LINE IN
LINE OUT
REC OUT
TAPE
PLAY BACK
L
R
R13 150K
R14
R15 33K
R16
R19 150K
R20
C11 63V100
C12 63V100
(DIRECT CONNECTOR)
INPUT/OUTPUT
SUPK498E
REC OUT/PLAYBACK
SUPK498D
J3
J4
J5
J6
J7
J8
J9
J10
SUPK 498B
S2-1~S2-6
(EQ POSITION)
S2-1
S2-2
S2-3
S2-4
S2-5
S2-6
source→rec out
S1-1
S1-2
source→tape
(TAPE MON)
R11 150K
R12
SUPK 498C
S3-1~S3-4
(EQ)
S3-1
S3-2
S3-3
S3-4
off→on
R17 100K
R18
SUPK 498A
IC1, 2
SVITA75559S
BUFF/OP AMP
+15.2V LINE
IC1
IC2
15.2
-15.2
R23 1K
C1 25V4.7
C5 100P
R27 10K
R33 150K
R29 100K
R31 100K
C3 100P
R25 8.2K
C7 100P
C9 25V4.7
R37 2.2K
R35 8.2K
Q1
R39 100K
R43 180
R41 1K
C2
R34
C6
R28
R30
R32
C4
R24
C8
R36
R26
R40
Q1, 2
2SC2878
SWITCHING
C304
C302
+14
-14.4
C303 16V22
C301 16V22
Q101 ~ 124
2SC1815L
BPF
C101 25V3.3
C201 50V1
Q101
R201 47K
R601 68
16Hz
R101 820
R501 2.7K
C205
C105 50V1
J0.15
R205 100K
R405 150K
Q105
R605 330
63Hz
R105 820
R505 2.7K
C109 J0.18
C209 K0.056
R209 100K
R409 100K
Q109
R609 220
250Hz
R109 820
R509 2.7K
C113 K0.047
C213 K0.012
R213 56K
Q113
R613 220
1kHz
R113 820
R513 2.7K
C117 K0.012
C217 K0.0033
R217 56K
Q117
R617 150
4kHz
R117 820
R517 6.8K
C121 K0.0027
C221 K820P
R221 56K
Q121
R621 100
16kHz
R121 820
R521 6.8K
C103 50V2.2
C203 50V0.33
Q103
R203 56K
R603 220
31.5Hz
R103 820
R503 2.7K
C107 50V0.33
C207 K0.12
R207 56K
Q107
R607 68
125Hz
R107 820
R507 2.7K
C111 K0.1
C211 K0.027
R211 47K
Q111
R611 220
500Hz
R111 820
R511 2.7K
C115 K0.022
C215 K0.0068
R215 56K
Q115
R615 180
2kHz
R115 820
R515 6.8K
C119 K0.0056
C219 K0.0015
R219 56K
Q119
R619 68
8kHz
R119 1K
R319 10K
R519 6.8K
C123 K0.0012
C223 K470P
R223 56K
Q123
R623 68
32kHz
R123 820
R523 6.8K
14.4
-1
-1.1
-1.6
-1.7
-0.5
-0.4
C102
C202
Q102
R202
R602
R102
R502
C106
C206
R206
R406
R606
R106
R506
C104
C204
Q104
R204
R604
R104
R504
C108
C208
R208
R608
R108
R508
SUPK 520A
SUPK 520B
16Hz
31.5Hz
63Hz
125Hz
250Hz
500Hz
1kHz
2kHz
4kHz
8kHz
16kHz
32kHz
VR1
VR3
VR5
VR7
VR9
VR11
VR13
VR15
VR17
VR19
VR21
VR23
VR2
VR4
VR6
VR8
200kΩG

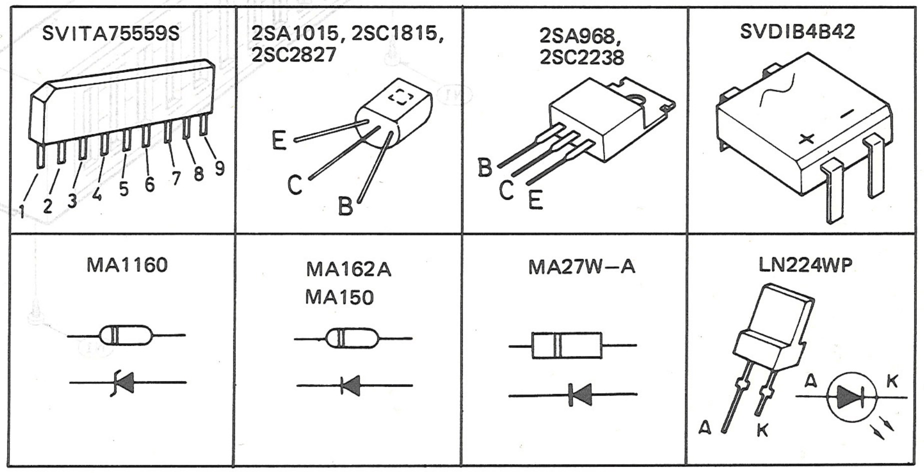

10
11
12
13
14
15
16
D3,4
MA1160M
Q4
2SA968
REGULATOR
Q3
2SC2238
REGULATOR
D1
SVDIB4B42
IC 2
15.2
R57 ½W10
C57 25V100
R53 390
D3
D4
R54 390
C55 25V100
C56 25V100
R51 ½W 680
C53 25V100
C54 25V100
C51 35V1000
C52 35V1000
D5
C66 Z0.01
C67 Z0.01
GROUND POINT
F1 T200mA
F2 T200mA
T1
AC 20V
YEL
0V
BLK
AC 20V
YEL
RED
BRN
ORN
WHT
BLU
(VOLTAGE SELECTOR)
240V
220V
120V
110V
S5
C1001 P0.01
S4
(POWER)
AC OUTLET
AC 50/60Hz
110/120/220/240V
D2,6
MA162
D5,7
MA150
D6
D2
D9
LN224WP
POWER INDICATOR
J12
SUPK498F
D7
R62 18K
R66 ¼W 1K
Q7
Q6
2SC1815
MUTING
Q7
2SA1015
MUTING
D8
MA27W-A
R65 10K
C65 16V10
R63 2.2K
C63 6.3V100
R61 4.7K
C62 50V1
C64 50V10
R64 5.6K
C61 35V100
R52
-15.2
R58 ½W10
C58 25V100
-16
-15.4
-23
-15.2V LINE
C2
R34
C6
R28
R30
R32
C4
R26
C8
C10
R36
R38
R40
R44
Q2
R42
2SC2878
C304
C302
+14.4V LINE
14.4
-14.4
-14.4V LINE
R60 ½W10
R59 ½W10
C60 25V220
C59 25V220
Q102
Q106
Q110
Q114
Q118
Q122
C202
C106
C206
C110
C210
C114
C214
C118
C218
C122
C222
R202
R206
R406
R210
R410
R214
R218
R222
16Hz
63Hz
250Hz
1kHz
4kHz
16kHz
R102
R106
R110
R114
R118
R122
R606
R610
R614
R618
R622
R502
R506
R510
R514
R518
R522
Q104
Q108
Q112
Q116
Q120
Q124
C204
C108
C208
C112
C212
C116
C216
C120
C220
C124
C224
R204
R208
R212
R216
R220
R224
31.5Hz
125Hz
500Hz
2kHz
8kHz
32kHz
R104
R108
R112
R116
R120
R320
R124
R608
R612
R616
R620
R624
R504
R508
R512
R516
R520
R524
J11
16Hz
31.5Hz
63Hz
125Hz
250Hz
500Hz
1kHz
2kHz
4kHz
8kHz
16kHz
32kHz
VR2
VR4
VR6
VR8
VR10
VR12
VR14
VR16
VR18
VR20
VR22
VR24
20B

Notes:

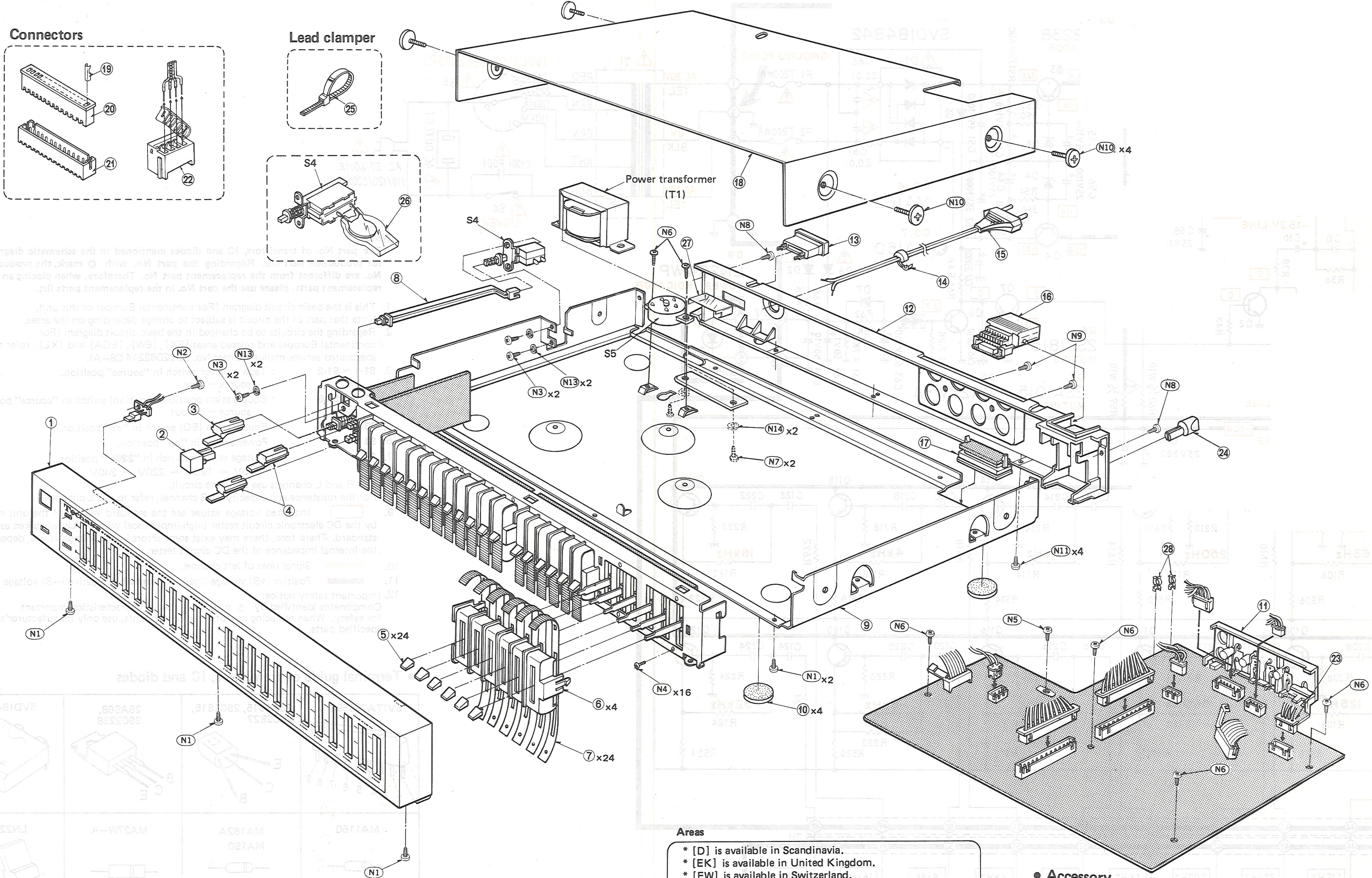
* The part No. of transistors, IC and diodes mentioned in the schematic diagram stand for production part No. Regarding the part No. with ✪ mark, the production part No. are different from the replacement part No. Therefore, when placing an order for replacement parts, please use the part No. in the replacement parts list.

1. This is the basic circuit diagram (For continental Europe) of this unit.
   Note that part of the circuit is subject to change depending on the areas.
2. Regarding the circuits to be changed in the basic circuit diagram (For continental Europe) and related areas [EK], [EW], [EGA] and [XL], refer to speparated service manual (Order No. SD82062214 C8–A).
3. **S1-1 ~ S1-2** : Tape monitor switch in **"source"** position.
   source ↔ tape
4. **S2-1 ~ S2-6** : Equalization position (position) switch in **"source"** position.
   source ↔ rec out
5. **S3-1 ~ S3-4** : Equalization (EQ) switch in **"on"** position.
6. **S4** : Power switch in **"on"** position.
7. **S5** : Voltage selector switch in **"220V"** position.
   110V ↔ 120V ↔ 220V ↔ 240V
8. The R and L channels use the same circuit.
   For the resistance and capacity of R channel, refer to the L channel.
9. ▭ Indicated voltage values are the standard values for the unit measured by the DC electronic circuit tester (high-impedance) with the chassis taken as standard. There fore, there may exist some errors in the voltage values, depending on the internal impedance of the DC circuit tester.
10. ⇢ Signal lines of left channel.
11. ▬ Positive (+B) voltage lines. ➡ Negative (—B) voltage lines.
12. Important safety notice:
    Componetns identified by ⚠ mark have special characteristics important for safety. When replacing any of these components, use only manufacturer's specified parts.

- **Terminal guide of transistors, IC and diodes**


SVITA75559S
1
2
3
4
5
6
7
8
9
2SA1015, 2SC1815, 2SC2827
E
C
B
2SA968, 2SC2238
B
C
E
SVDIB4B42
MA1160
MA162A
MA150
MA27W—A
LN224WP
A
K
A
K

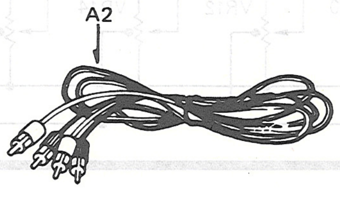
EXPLODED VIEWS


Connectors
⑲
⑳
㉑
㉒
Lead clamper
㉕
S4
㉖
Power transformer
(T1)
⑱
N10 ×4
N10
N8
N6
㉗
⑬
⑮
⑭
S4
⑧
⑫
⑯
N9
N2
N3 ×2
N13 ×2
N13 ×2
N3 ×2
S5
N8
㉔
①
③
②
N14 ×2
N7 ×2
⑰
④
N11 ×4
㉘
N1
⑤×24
⑨
N6
N5
N6
⑪
㉓
N6
N1 ×2
N4 ×16
⑥×4
⑩×4
N1
⑦×24
N6
N1

Areas

* [D] is available in Scandinavia.
* [EK] is available in United Kingdom.
* [EW] is available in Switzerland.
* [EB] is available in Belgium.
* [EF] is available in France.
* [EGA] is available in F.R. Germany.
* [EH] is available in Holland.
* [XA] is available in Southeast Asia, Oceania, Africa,
Middle Near East and Central South America.
* [XL] is available in Australia.

● **Accessory**



REPLACEMENT PARTS LIST

Notes:

1. Part numbers are indicated on most mechanical parts. Please use this part number for parts orders.
2. Important safety notice:
   Components indentified by ⚠ mark have special characteristics importanf for safety. When replacing any of these components, use only manufacturer's specified parts.
3. Bracketed indications Ref. No. columns specify the area.
   Parts without these indications can be used for all areas.
4. The "**S**" mark is service standard parts and may differ from production parts.
5. Ⓚ -marked parts are used for black type only, while ○-marked parts are for silver type only.
6. Parts other than Ⓚ and ○-marked are used for both black and silver types.
7. The parenthesized numbers in the columns of description stand for the quantity per set.

Black type model No. : SH-E5 (K)

Ref. No.	Part No.	Description
INTEGRATED CIRCUIT		
IC1, 2	SVITA75559S	Operation Amplifier
TRANSISTORS		
Q1, 2	2SC2878A—T	Switching
Q3	2SC2238—OLB	Regulator, ⊕B Voltage
Q4	2SA968—OLB	Regulator, ⊖B Voltage
Q6	2SC1815L—G	Muting Circuit
Q7	2SA1015L—G	Muting Circuit
Q101～124	2SC1815L—G	Band Pass Filter
DIODES		
D1 ⚠	SVD1B4B42	Rectifier
D2 ⚠S	MA162A	Rectifier
D3, 4 S	SVDRD16EB	Zener, 16V
D5, 7 S	MA162A	Switching
D6 ⚠S	MA162A	Rectifier
D8	MA27W—A	Switching
D9	LN224WP	Power Indicator
VARIABLE RESISTORS		
VR1～24	EVAH36P13G25	Band Level Control, 200kΩ(G)
TRANSFORMER		
T1 〔EK,XL〕 ⚠	SLTK5J11—W	Power Source
T1 〔EW,EGA〕 ⚠	SLTK5J12—W	Power Source
T1 [Other] ⚠	SLTK5J8—W	Power Source
FUSES		
F1, 2 ⚠	XBA2C02TRO	T200mA, 250V
F3 〔EW,EGA〕 ⚠ only	XBA2C12TRO	T1.25A, 250V
SWITCHES		
S1, 2	SSHK23	EQ Position, Tape Monitor
S3	SSHK22	EQ
S4 ⚠	ESB90619S	Power Source
S5 [D,XA,EB, EF,EH] only ⚠	ESE3787	Voltage Selector

Ref. No.	Part No.	Description & Pcs
CABINET and CHASSIS PARTS		
1 ○	SGWK120A	Front Panel Ass'y (Silver) (1)
1 Ⓚ	SGWK120BA	Front Panel Ass'y (Black) (1)
2	SBC425—1	Button, Power Source (1)
3	SBCK31	Button, EQ (1)
4	SBCK31—1	Button, Tape Monitor & Position (2)
5	SBDK4	Knob, Band Level Control (24)
6	SGXK47—1	Ornament, Band Level Volume (4)
7	SDUK5—1	Filme (24)
8	SUBK6	Coupling Rod (1)
9 〔EK,XL, EW,EGA〕	SKUKHE5N	Bottom Board, W/Feet (1)
9 [Other]	SKUKHE5D	Bottom Board, W/Feet (1)
10	SKL245—2	Foot (4)
11	SJF3055—1N	Terminal, Output & Input (1)
12 〔EW〕	SGPK140—1B	Rear Panel (1)
12 〔EGA〕	SGPK140—1C	Rear Panel (1)
12 〔EK〕	SGPK140—2A	Rear Panel (1)
12 〔XL〕	SGPK140—3A	Rear Panel (1)
12 [Other]	SGPK140—1A	Rear Pan el (1)
13 ⚠ 〔EK〕 only	SJS9227	Socket, AC Outlet (1)
13 ⚠ [Other]	SJS9225	Socket, AC Outlet (1)
14	SHR127	Bushing, AC Cord (1)
15 〔EK〕 ⚠	SJA149	AC Cord (1)
15 〔XL〕 ⚠	QFC1208M	AC Cord (1)
15 ⚠ [Other]	SJA151	AC Cord (1)
16	SJS9605	Direct Connector, Input/Output (1)
17	SJS9607	Direct Connector, Rec/Play (1)
18 ○	SKCKHE5N	Cabinet (Silver) (1)
18 Ⓚ	SKCKHE5KD	Cabinet (Black) (1)
19	SJT783	Terminal, Socket (52)
20	SJS5331	Socket (3 Pin) (2)
20	SJS5425	Socket (4 Pin) (1)
20	SJS5629	Socket (6 Pin) (2)
20	SJS5047	Socket (15 Pin) (2)
21	SJT3319	Connector (3 Pin) (2)
21	SJT3415	Connector (4 Pin) (1)
21	SJT3611	Connector (6 Pin) (2)
21	SJT3027	Connector (15 Pin) (2)
22	SJS5519	Connector (5 Pin) (1)
22	SJS5627	Connector (6 Pin) (1)
23	SWKKHE5—2	Lead Ass'y (1)
24 ○	SHE135	Pin (Silver) (1)
24 Ⓚ	SHE135—1	Pin (Black) (1)
25	SHR301	Clamper, Lead Wire (7)
26 [EK,XL]	SMXA65	Cover, Capacitor (C1001) (1)
26 [Other]	SMXK26	Cover, Capacitor (C1001) (1)
27	SMX663	Cover, AC Outlet (1)
28	SJT347	Holder, Fuse [Other] (4) [EW,EGA] (6)
SCREWS		
N1 S	XTN3+8B	Tapping, ⊕3×8 (5)
N2 S	XTB26+6B	Tapping, ⊕26×6 (1)
N3 S	XSN3+6S	⊕3×6 (4)
N4 S	XSN2+4	⊕2×4 (16)
N5	XTBS3+8BFZ1	Tapping, ⊕3×8 (1)
N6 S	XTB3+8BFN	Tapping, ⊕3×8 (6)
N7 S	XTN3+10B	Tapping, ⊕3×10 (2)
N8 S	XTN3+10BFZ	Tapping, ⊕3×10 (2)
N9 S	XTB3+10BFZ	Tapping, ⊕3×10 (2)
N10 ○	SNE2095—2	Cabinet, (Silver) (4)
N10 Ⓚ	SNE2095—3	Cabinet, (Black) (4)
N11 S	XTB3+10BFZ	Tapping, ⊕3×10 (4)
WASHERS		
N13 S	XWA3B	Spring, ϕ3 (4)
N14 S	XWG3	Plain, ϕ3 (2)
PACKING PARTS		
P1 〔EK,XL〕	SPGK97	Carton Box (1)
P1 〔EF〕	SPGK96	Carton Box (1)
P1 [Other]	SPGK95	Carton Box (1)
P2 〔EK,XL〕	SPSK43—1	Pad, Front (1)
P2 [Other]	SPSK43	Pad, Front (1)
P3 〔EK,XL〕	SPSK44—1	Pad, Rear (1)
P3 [Other]	SPSK44	Pad, Rear (1)
P4 ○	SPP691—1	Polyethylene Bag, (Silver) (1)
P4 Ⓚ	SPP713	Polyethylene Bag, (Black) (1)
P5	SPHK17	Polyethylene Sheet (1)
P6	SGK1413	Label, (Black Type only) (2)
ACCESSORIES		
A1 〔XA,XL〕	SQFK10014	Instruction Book (1)
A1 [Other]	SQFK10015	Instruction Book (1)
A2	SJP2129—5	Pin Cord (2)

RESISTORS & CAPACITORS

Notes:

1. Part numbers are indicated on most mechanical parts. Please use this part number for parts orders.
2. Important safety notice:
   Components identified by ⚠ mark have special characteristics important for safety. When replacing any of these components use only manufacturer's specified parts.
3. The "**S**" mark is service standard parts and may differ from production parts.
4. Unless otherwise specified.
   All resistors are in OHMS (Ω) K = 1000Ω , M = 1000kΩ
   All capacitors are in MICROFARADS (μF) P = μμF

Numbering System of Resistor

Example

ERD	25	F	J	101
Type	Wattage (1/4W)	Shape	Tolerance	Value (100Ω)
	50			
	Wattage (1/2W)			

Numbering System of Capacitor

Example

ECKD	1H	102	Z	F
Type	Voltage	Value	Tolerance	Peculiarity
ECEA	50	M	R47	R
Type	Voltage	Peculiarity use	Value	Special use

Capacitor Type	Voltage		Tolerance
	ECEA Type	Others	
ECEA : Electrolytic	1A : 10V	1H : 50V DC	J : ± 5%
ECCD : Ceramic	1E : 25V	05 : 50V	K : ± 10%
ECKD : Ceramic	1V : 35V	KC : 400VAC	Z : +80%, −20%
ECQM : Polyester	1H : 50V		P : +100%, −0%
ECQV : TF	50 : 50V		
	25 : 25V		

Ref. No.	Part No.	Value
RESISTORS		
R7, 8 S 〔EGA〕 only	ERD25FJ102	1K
R9, 10 S 〔EGA〕 only	ERD25FJ102	1K
R11, 12 S	ERD25TJ154	150K
R13, 14 S	ERD25TJ154	150K
R15, 16 S	ERD25TJ333	33K
R17, 18 S	ERD25TJ104	100K
R19, 20 S	ERD25TJ154	150K
R23, 24 S	ERD25FJ102	1K
R25, 26 S	ERD25FJ822	8.2K
R27, 28 S	ERD25FJ103	10K
R29, 30 S	ERD25TJ104	100K
R31, 32 S	ERD25TJ104	100K
R33, 34 S	ERD25TJ154	150K
R35, 36 S	ERD25FJ822	8.2K
R37, 38 S	ERD25FJ222	2.2K
R39, 40 S	ERD25TJ104	100K
R41, 42 S	ERD25FJ102	1K
R43, 44 S	ERD25FJ181	180
R51, 52 ⚠S	ERD25FJ681	680
R53, 54 S	ERD25FJ391	390
R57, 58 ⚠S	ERD50FJ100	10
R59, 60 ⚠S	ERD50FJ100	10
R61 S	ERD25FJ472	4.7K
R62 S	ERD25TJ183	18K
R63 S	ERD25FJ222	2.2K
R64 S	ERD25FJ562	5.6K
R65 S	ERD25FJ103	10K
R66 ⚠S	ERD25FJ102	1K
R101, 102 S	ERD25FJ821	820
R103, 104 S	ERD25FJ821	820
R105, 106 S	ERD25FJ821	820
R107, 108 S	ERD25FJ821	820
R109, 110 S	ERD25FJ821	820
R111, 112 S	ERD25FJ821	820
R113, 114 S	ERD25FJ821	820
R115, 116 S	ERD25FJ821	820
R117, 118 S	ERD25FJ821	820
R119, 120 S	ERD25FJ102	1K
R121, 122 S	ERD25FJ821	820
R123, 124 S	ERD25FJ821	820
R201, 202 S	ERD25TJ473	47K
R203, 204 S	ERD25TJ563	56K
R205, 206 S	ERD25TJ104	100K
R207, 208 S	ERD25TJ563	56K
R209, 210 S	ERD25TJ104	100K
R211, 212 S	ERD25TJ473	47K
R213, 214 S	ERD25TJ563	56K
R215, 216 S	ERD25TJ563	56K
R217, 218 S	ERD25TJ563	56K
R219, 220 S	ERD25TJ563	56K
S		
R221, 222 S	ERD25TJ563	56K
R223, 224 S	ERD25TJ563	56K
R319, 320 S	ERD25FJ103	10K
R405, 406 S	ERD25TJ154	150K
R409, 410 S	ERD25TJ104	100K
R501, 502 S	ERD25FJ272	2.7K
R503, 504 S	ERD25FJ272	2.7K
R505, 506 S	ERD25FJ272	2.7K
R507, 508 S	ERD25FJ272	2.7K
R509, 510 S	ERD25FJ272	2.7K
R511, 512 S	ERD25FJ272	2.7K
R513, 514 S	ERD25FJ272	2.7K
R515, 516 S	ERD25FJ682	6.8K
R517, 518 S	ERD25FJ682	6.8K
R519, 520 S	ERD25FJ682	6.8K
R521, 522 S	ERD25FJ682	6.8K
R523, 524 S	ERD25FJ682	6.8K
R601, 602 S	ERD25FJ680	68
R603, 604 S	ERD25FJ221	220
R605, 606 S	ERD25FJ331	330
R607, 608 S	ERD25FJ680	68
R609, 610 S	ERD25FJ221	220
R611, 612 S	ERD25FJ221	220
R613, 614 S	ERD25FJ221	220
R615, 616 S	ERD25FJ181	180
R617, 618 S	ERD25FJ151	150
R619, 620 S	ERD25FJ680	68
R621, 622 S	ERD25FJ101	100
R623, 624 S	ERD25FJ680	68
CAPACITORS		
C13, 14 S 〔EGA〕 only	ECCD1H680K	68P
C15, 16 S 〔EGA〕 only	ECCD1H680K	68P
C1, 2 S	ECEA25Z4R7	4.7
C3, 4 S	ECCD1H101K	100P
C5, 6 S	ECCD1H101K	100P
C7, 8 S	ECCD1H101K	100P
C9, 10 S	ECEA25Z4R7	4.7
C11, 12 S	ECEA1AS101	100
C51, 52 S	ECEA1VS102	1000
C53, 54 S	ECEA1ES101	100
C55, 56 S	ECEA1ES101	100
C57, 58 S	ECEA1ES101	100
C59, 60 S	ECEA1ES221	220
C61 S	ECEA1VS101	100
C62 S	ECEA50Z1	1
C63 S	ECEA1ES101	100
C64 S	ECEA1HS100	10
C65 S	ECEA1HS100	10
C66, 67 ⚠S	ECKD1H103ZF	0.01
C101, 102 S	ECEA50Z3R3	3.3
C103, 104 S	ECEA50Z2R2	2.2
C105, 106 S	ECEA50Z1	1
C107, 108 S	ECEA50ZR33	0.33
C109, 110	ECQM1H184KZ	0.18
C111, 112 S	ECQM1H104JZ	0.1
C113, 114 S	ECQM1H473JZ	0.047
C115, 116 S	ECQM1H223JZ	0.022
C117, 118 S	ECQM1H123JZ	0.012
C119, 120 S	ECQM1H562JZ	0.0056
C121, 122 S	ECQM1H272JZ	0.0027
C123, 124 S	ECQM1H122JZ	0.0012
C201, 202 S	ECEA50Z1	1
C203, 204 S	ECEA50ZR33	0.33
C205, 206	ECQV05154JZ	0.15
C207, 208	ECQV05124JZ	0.12
C209, 210 S	ECQM1H563JZ	0.056
C211, 212 S	ECQM1H273JZ	0.027
C213, 214 S	ECQM1H123JZ	0.012
C215, 216 S	ECQM1H682JZ	0.0068
C217, 218 S	ECQM1H332JZ	0.0033
C219, 220 S	ECQM1H152JZ	0.0015
C221, 222 S	ECKD1H821KB	820P
C223, 224 S	ECKD1H471KB	470P
C301, 302 S	ECEA1ES220	22
C303, 304 S	ECEA1ES220	22
C1001 ⚠S	ECKDKC103PF	0.01

Printed in Japan
82069500 ® TK

ORDER NO. SD82062214C8–A

Stereo Graphic Equalizer SH-E5/SH-E5(K)

This booklet contains the specifications for SH-E5, written in Germany, France and Spanish, and the circuits to be changed according to the areas.
File this manual together with the SH-E5 service manual (Order No. SD82062214C8).

DEUTSCH

TECHNISCHE DATEN (Spezifikationen Können infolge von Verbesserungen ohne Ankündigung geändert werden.)

(DIN 45 500)

Frequenzgang (mittelstellung)	: 5 Hz~100 kHz, −1 dB
Maximalausgangsspannung	: 8 V (1 kHz, THD 0,01%)
Nennausgangsspannung	: 1 V
Nennklirrfaktor	: 0,005% (20 Hz~20 kHz) 0,003% (1 kHz)
Eingangsspannung	: 1 V
Geräuschabstand	: 100 dB (110 dB, IHF, A)
Maximaleingangsspannung	: 8 V (1 kHz)
Eingangsimpedanz	: 47 kΩ
Verstärkung	: 0±1 dB
Kanalsymmetrie 250 Hz~6300 Hz	: ±0,5 dB
Kanaltrennung 1kHz	: 60 dB
Frequenzgangregler	: +12 dB~−12 dB (12 Regler, stufenlos verstellbar)
Mittenfrequenzen	: 16 Hz, 31,5 Hz, 63 Hz, 125 Hz, 250 Hz, 500 Hz, 1 kHz, 2 kHz, 4 kHz, 8 kHz, 16 kHz, 32 kHz

ALLGEMEINE DATEN

Stromversorgung	: Wechselstrom, 240 V, 50 Hz nur (Fur Austral und fur England) Wechselstrom, 220 V, 50 Hz nur (Fur Deutsch und fur Schweizerisch) Wechselstrom, 110 V/120 V/220 V/240 V, 50 Hz/60 Hz (Für andere Lärder)
Leistungsaufnahme	: 17 W
Abmessungen (H×B×T)	: 50×315×240 mm (2″×12-13/32″×9-7/16″)
Gewicht	: 2.0 kg (4.4 lb)

FRANÇAIS

CARACTERISTIQUES (Sujet á changement sans préaris.)

(DIN 45 500)

Courbe de réponse (position centrale)	: 5 Hz~100 kHz, −1 dB
Tension de sortie maximale	: 8 V (1 kHz, THD 0,01%)
Tension de sortie nominale	: 1 V
Distortion harmonique totale	: 0,005% (20 Hz~20 kHz) 0,003% (1 kHz)
Sensibilité d'entrée	: 1 V
Signal/Bruit	: 100 dB (110 dB, IHF' A)
Tension d'entrée maximale	: 8 V (1 kHz)
Impédance d'entrée	: 47 kΩ
Gain	: 0±1 dB
Equilibrage de canal 250 Hz~6300 Hz	: ±0,5 dB
Séparation de canal 1 kHz	: 60 dB
Commandes de niveau de gamme	: +12 dB~−12 dB (12 éléments, continuellement variables)
Fréquences charnières	: 16 Hz, 31,5 Hz, 63 Hz, 125 Hz, 250 Hz, 500 Hz, 1 kHz, 2 kHz, 4 kHz, 8 kHz, 16 kHz, 32 kHz

GENERALITES

Alimentation	: CA. 240 V, 50 Hz seul (Pour Australie et pour Angleterre) CA. 220 V, 50 Hz seul (Pour Allemagne et pour Suisse) CA. 110 V/120 V/220 V/240 V, 50 Hz/60 Hz (Autres)
Consommation	: 17 W
Dimensions (h×l×pr) mm	: 50×315×240 mm (2″×12-13/32″×9-7/16″)
Poids	: 2,0 kg (4,4 lb)

ESPAÑOL

ESPECIFICACIONES

(Estas especificaciones están sujetas a cualquier cambio sin previo eviso.)

(DIN 45 500)

Respuesta de frecuencia (posición central)	: 5 Hz~100 kHz, −1 dB
Tensión de salida máxima	: 8 V (1 kHz, THD 0.01%)
Tensión de salida de régimen	: 1 V
Distorsión armónica total nominal	: 0,005% (20 Hz~20 kHz) 0,003% (1 kHz)
Sensibilidad de entrada	: 1 V
Relación de señal ruido	: 100 dB (110 dB, IHF' A)
Tensión de entrada máxima	: 8 V (1 kHz)
Impedancia de entrada	: 47 kΩ
Ganancia	: 0±1 dB
Equilibrio de canales 250 Hz~6300 Hz	: ±0,5 dB
Separación de canales 1 kHz	: 60 dB

Controles de nivel de banda	: +12 dB~−12 dB (12 elementos, continuamente variables)
Frecuencia central	: 16 Hz, 31,5 Hz, 63 Hz, 125 Hz, 250 Hz, 500 Hz, 1 kHz, 2 kHz, 4 kHz, 8 kHz, 16 kHz, 32 kHz

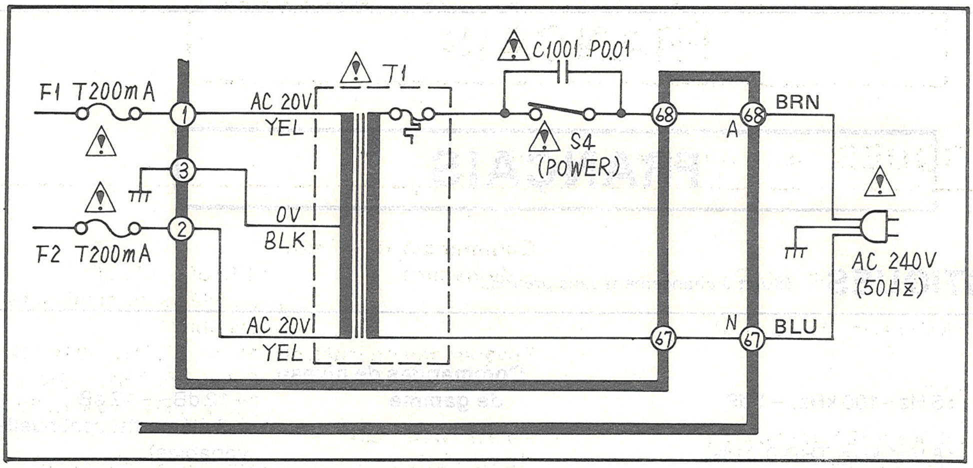
EN GENERAL

Alimentación de corriente	: C.A. de 240 V, 50 Hz solo (Para Australia y para Inglaterra) C.A. de 220 V, 50 Hz solo (Para Alemania y para Suizo) C.A. de 110 V/120 V/220 V/240 V, 50 Hz/60 Hz (Para otros paises)
Consumo de corriente	: 17 W
Dimensiones (alto×ancho×prof.)	: 50×315×240 mm (2''×12-13/32''×9-7/16'''
Peso	: 2,0 kg (4,4 lb)

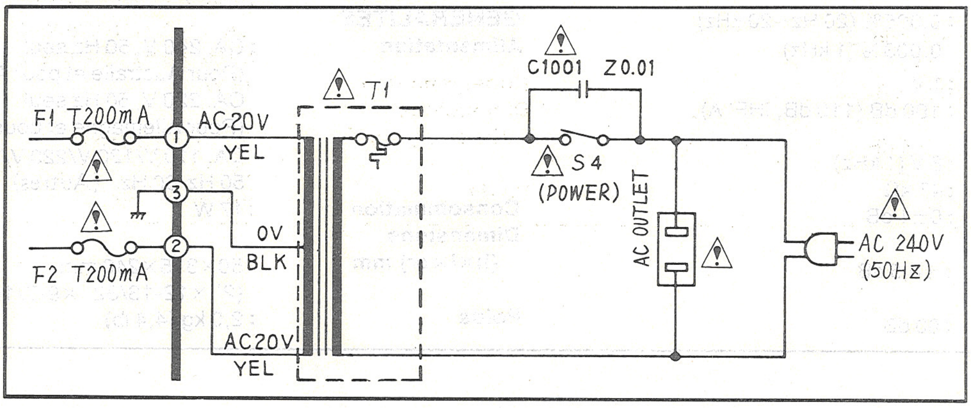
CIRCUITS TO BE CHANGED AND THE AREAS

- Power source circuit

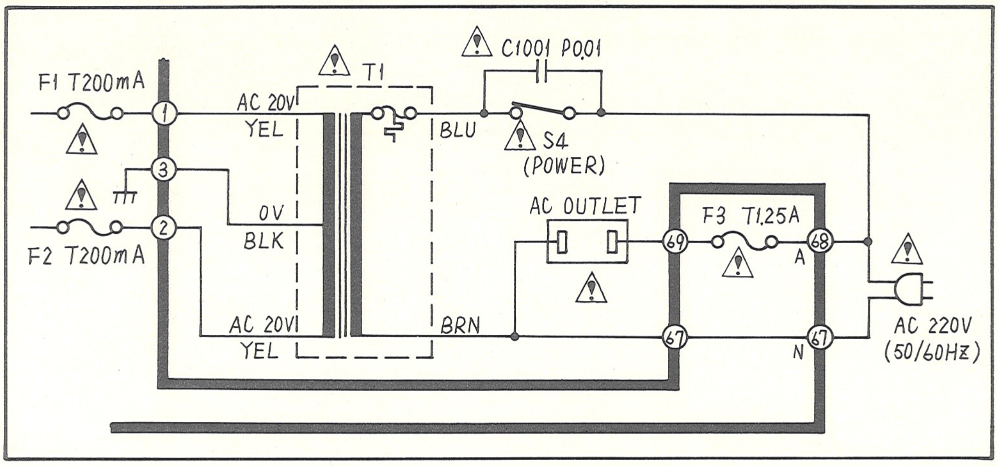
[XL] area


F1 T200mA
F2 T200mA
1
3
2
AC 20V
YEL
0V
BLK
AC 20V
YEL
T1
C1001 P0.01
S4
(POWER)
68
67
A
N
68
67
BRN
BLU
AC 240V
(50Hz)

[EK] area


F1 T200mA
F2 T200mA
1
3
2
AC20V
YEL
0V
BLK
AC20V
YEL
T1
C1001
Z0.01
S4
(POWER)
AC OUTLET
AC 240V
(50Hz)

[EW, EGA] area


F1 T200mA
1
3
2
F2 T200mA
AC 20V
YEL
0V
BLK
AC 20V
YEL
T1
BLU
BRN
C1001 P0.01
S4
(POWER)
AC OUTLET
F3 T1.25A
69
68
A
67
67
N
AC 220V
(50/60Hz)

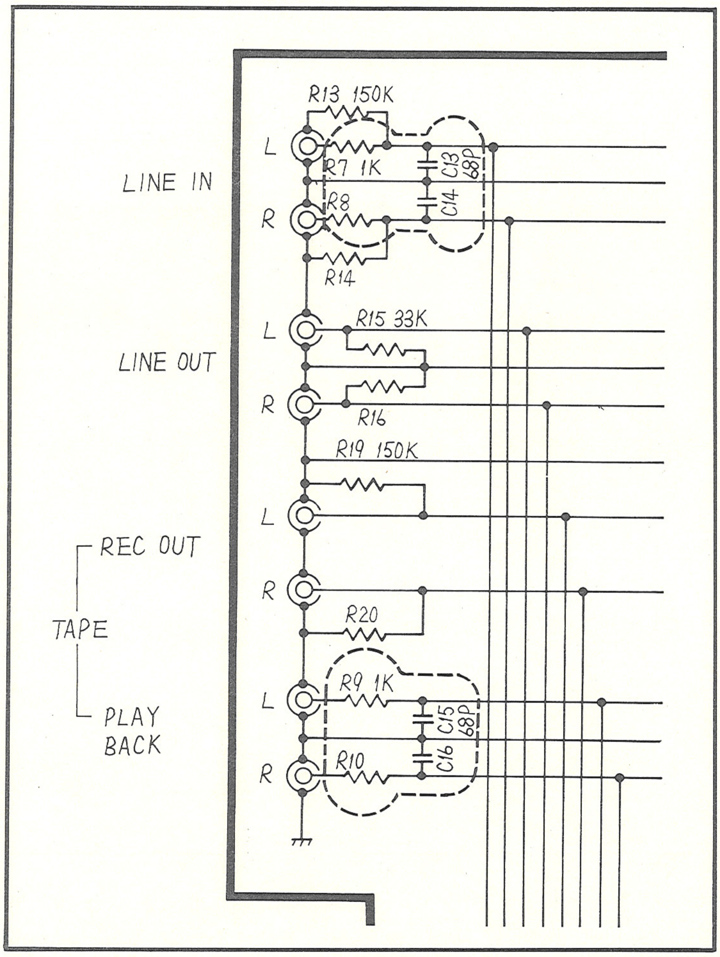
Notes :

- * [XL] is available in Australia.
- * [EK] is available in United Kingdom.
- * [EW] is available in Switzerland.
- * [EGA] is available in F.R. Germany.

● Input terminal circuit

[EGA] area only

* [EGA] is available in F.R.Germany.


LINE IN
L
R
R13 150K
R7 1K
C13 68P
C14
R8
R14
LINE OUT
L
R
R15 33K
R16
R19 150K
REC OUT
TAPE
PLAY BACK
L
R
R20
L
R
R9 1K
C15 68P
R10
C16

Additional parts